



367286

Five-Year Review Report

First Five-Year Review Report

for

DePue/New Jersey Zinc/Mobil Chemical Corp.
Superfund Site
DePue, Bureau County
Illinois

June 2010

PREPARED BY:

Illinois EPA
Springfield, IL

Approved by:

Date:


Richard C. Karl, Director
Superfund Division

6-25-10

[This page intentionally left blank.]

Five-Year Review Report

Table of Contents

List of Acronyms and Abbreviations.....	5
Executive Summary	7
Five-Year Review Summary Form	9
I. Introduction	11
II. Site Chronology.....	12
III. Background.....	13
Physical Characteristics	13
Land and Resource Use	13
History of Contamination	14
Initial Response.....	14
Basis for Taking Action.....	15
IV. Remedial Actions	15
Remedy Selection	15
Remedy Implementation.....	16
Institutional Controls	17
System Operations/Operation and Maintenance	18
Progress Since the Last Five-Year Review	18
V. Five-Year Review Process	19
Administrative Components	19
Community Notification and Involvement	19
Document and Data Review	19
Site Inspection.....	20
Interviews.....	20

VII. Technical Assessment	20
<i>Question A:</i> Is the remedy functioning as intended by the decision documents?	20
<i>Question B:</i> Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy selection still valid?	21
<i>Question C:</i> Has any other information come to light that could call into question the protectiveness of the remedy?	21
Technical Assessment Summary	21
VIII. Issues	21
IX. Recommendations and Follow-up Actions	22
X. Protectiveness Statement(s)	22
XI. Next Review	22

Tables

- Table 1 – Chronology of Site Events
- Table 2 – Issues
- Table 3 – Recommendations and Follow-up Actions

Figure

- Figure1 - Site Map

Appendices

- Appendix A - List of Documents Reviewed
- Appendix B - Five-Year Review Public Notice
- Appendix C - Site Inspection Checklist
- Appendix D - Photos Documenting Site Conditions

List of Acronyms and Abbreviations

AMSL	Above Mean Sea Level
ARARs	Applicable or Relevant and Appropriate Requirements
CAMU	Corrective Action Management Unit
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
FS	Feasibility Study
HRS	Hazard Ranking System
ICs	Institutional Controls
IWTP	Interim Water Treatment Plant
Illinois EPA	Illinois Environmental Protection Agency
NCP	National Contingency Plan
NPL	National Priorities List
O&M	Operation & Maintenance
OU	Operable Unit
PRPs	Potentially Responsible Parties
RAOs	Remedial Action Objectives
RI	Remedial Investigation
ROD	Record of Decision
RPM	Remedial Project Manager
UECA	Uniform Environmental Covenants Act
U.S. EPA	United States Environmental Protection Agency
UU/UE	Unlimited Use and Unrestricted Exposure

[This page intentionally left blank.]

Executive Summary

The DePue/New Jersey Zinc/Mobil Chemical Superfund Site is located within the village of DePue in Selby Township, Bureau County, Illinois, and encompasses approximately 950 acres. The site is divided into five distinct Operable Units (OUs): the South Ditch area (OU1), the Phosphogypsum Stack (OU2), the Plant Site (OU3), Off-Site Soils (OU4), and DePue Lake (OU5).

The interim remedial action at OU1 has been completed and is the subject of this five-year review. OU2 was under closure at the time the site was proposed and listed on the National Priorities List. This closure is occurring consistent with Illinois applicable or relevant and appropriate requirements (ARARs) and no Record of Decision for OU2 is anticipated. Currently, OU3 and OU4 are the subjects of ongoing remedial investigations (RIs). The OU5 RI Report was finalized in July 2009 and the feasibility study (FS) is underway. Due to the location of OU1, it is anticipated that the RI/FS for OU5 will provide data to select and design a final remedy for OU1.

The Illinois Environmental Protection Agency (Illinois EPA) has prepared this First Five-Year Review Report on behalf of the United States Environmental Protection Agency (U.S. EPA) under Section 121 of the Comprehensive Environmental Response, Compensation, and Liability Act and the National Contingency Plan. The trigger for this five-year review was the start of remedial action on-site construction of the interim remedy for OU1 on July 1, 2005. The next five-year review report is due within five years of the signature date of this review.

The 2003 interim remedy selected for the South Ditch concentrated on excavation and protective containment of highly mobile sediment known to include elevated concentrations of heavy metals. The metals-contaminated sediments were demonstrated to exhibit acute ecological toxicity to two surrogate test organisms during the RI and represented a human health risk primarily to the adolescent trespasser as determined in the screening risk assessment. Another factor that drove remedy selection was the fact that the contaminated sediments were located in an extremely dynamic physical setting with the potential to migrate into DePue Lake and from there into the Illinois River.

Prior to implementation of the South Ditch remedy, the contaminated groundwater and surface water known to be the source of the metals-contaminated sediments was brought under control and treated in an on-site Interim Water Treatment Plant (IWTP). The IWTP is fed by a lift station at the previous head of the South Ditch and is located at OU3.

The South Ditch interim remedy required the construction of a Corrective Action Management Unit (CAMU) to contain the sediments. First, the metals-contaminated sediments were stabilized with power plant combustion ash to fix the metals and provide physical stabilization and then were placed in the CAMU. The CAMU was designed to meet Resource Conservation and Recovery Act requirements and ARARs and is located adjacent to the primary zinc smelter slag pile at OU3.

The interim remedy at OU1 is protective of human health and the environment in the short term because access to the South Ditch is restricted by a fence and the metals-contaminated sediments that were removed are stored in a CAMU at OU3. In order for the remedy at OU1 to be protective in the long term, the remedy selection process for OU5 must be completed and implemented. A site-wide protectiveness statement can not be made at this time because remedy selection and remedial actions have not been initiated at all operable units. Additionally, a determination of the need for institutional controls (ICs) for the site will be undertaken to ensure long-term protectiveness of human health and the environment. Illinois EPA, in consultation with U.S. EPA, will review the need for ICs during the selection of the final remedy components. If needed, Illinois EPA and U.S. EPA will require IC evaluation activities and an IC work plan for implementation and long-term stewardship.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site name (from WasteLAN): DePue/New Jersey Zinc/Mobil Chemical		
EPA ID (from WasteLAN): ILD062340641		
Region: 5	State: Illinois	City/County: DePue / Bureau
SITE STATUS		
NPL status: <input checked="" type="checkbox"/> Final <input type="checkbox"/> Deleted <input type="checkbox"/> Other (specify)		
Remediation status (choose all that apply): <input type="checkbox"/> Under Construction <input checked="" type="checkbox"/> Operating <input type="checkbox"/> Complete		
Multiple OUs?: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	Construction completion date for OU1: 06/20/2006	
Has site been put into reuse? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		
REVIEW STATUS		
Lead agency: <input type="checkbox"/> EPA <input checked="" type="checkbox"/> State <input type="checkbox"/> Tribe <input type="checkbox"/> Other Federal Agency _____		
Author name: Richard Lange		
Author title: Remedial Project Manager	Author affiliation: Illinois Environmental Protection Agency	
Review period:** September 2009 to June 2010		
Date(s) of site inspection: 03/01/2010		
Type of review: <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <input checked="" type="checkbox"/> Post-SARA <input type="checkbox"/> Pre-SARA <input type="checkbox"/> NPL-Removal only </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <input type="checkbox"/> Non-NPL Remedial Action Site <input type="checkbox"/> NPL State/Tribe-lead </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <input type="checkbox"/> Regional Discretion </div>		
Review number: <input checked="" type="checkbox"/> 1 (first) <input type="checkbox"/> 2 (second) <input type="checkbox"/> 3 (third) <input type="checkbox"/> Other (specify) _____		
Triggering action: <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <input checked="" type="checkbox"/> Actual RA Onsite Construction at OU 1 <input type="checkbox"/> Actual RA Start at OU# _____ </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <input type="checkbox"/> Construction Completion <input type="checkbox"/> Previous Five-Year Review Report </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <input type="checkbox"/> Other (specify) </div>		
Triggering action date (from WasteLAN): 7/1/05		
Due date (five years after triggering action date): 7/1/10		

* ["OU" refers to operable unit.]

** [Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.]

Five-Year Review Summary Form cont'd.

Issues:

- 1) A small quantity of metals-contaminated sediments has been redeposited in the upper segment of the South Ditch (OU1).
- 2) IC requirements are undetermined.

Recommendations and Follow-up Actions:

- 1a) Fully assess the redeposited sediments as part of the OU5 RI/FS.
- 1b) Select a final remedy for the South Ditch as part of the OU5 ROD.
- 1c) Evaluate the use of enhanced flood protection of the lift station.
- 2) Determine and clarify in the ROD for OU5 whether ICs are required as part of the final remedy for OU1 to ensure long-term protectiveness.

Protectiveness Statement(s):

The interim remedy at OU1 is protective of human health and the environment in the short term because access to the South Ditch is restricted by a fence and the metals-contaminated sediments that were removed are stored in a CAMU at OU3. In order for the remedy at OU1 to be protective in the long term, the remedy selection process for OU5 must be completed and implemented. A site-wide protectiveness statement can not be made at this time because remedy selection and remedial actions have not been initiated at all operable units. Additionally, a determination of the need for ICs for the site will be undertaken to ensure long-term protectiveness of human health and the environment. Illinois EPA, in consultation with U.S. EPA, will review the need for ICs during the selection of the final remedy components. If needed, Illinois EPA and U.S. EPA will require IC evaluation activities and an IC work plan for implementation and long-term stewardship.

Five-Year Review Report

I. Introduction

The purpose of a five-year review is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in five-year review reports. In addition, five-year review reports identify issues found during the review, if any, and recommendations to address them.

The Illinois Environmental Protection Agency (Illinois EPA) prepared this five-year review pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Contingency Plan (NCP). CERCLA §121 states:

If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.

The United States Environmental Protection Agency (U.S. EPA) interpreted this requirement further in the NCP: 40 CFR §300.430(f)(4)(ii) states:

If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.

Illinois EPA conducted the five-year review of the remedy implemented at the DePue/New Jersey Zinc/Mobil Chemical Superfund Site (Site, or DePue Site) located in DePue, Illinois. The review was performed under the direction of the Illinois EPA Remedial Project Manager (RPM) from September 2009 to June 2010. This report documents the results of the review.

This is the first five-year review for the DePue Site. The triggering action for this statutory review was the start of remedial action on-site construction of the remedy on July 1, 2005. This statutory five-year review is required due to the fact that hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

The site has been divided into five distinct Operable Units (OUs): the South Ditch area (OU1), the Phosphogypsum Stack (OU2), the Plant Site (OU3), Off-Site Soils (OU4), and DePue Lake (OU5). The interim remedial action at OU1 that was selected in an October 2003 Record of Decision (ROD) has been completed and is the subject of this five-year review. OU2 was under

closure at the time the site was proposed and listed on the National Priorities List (NPL). This closure is occurring consistent with Illinois applicable or relevant and appropriate requirements (ARARs) and no additional ROD for OU2 is anticipated. Currently, OU3 and OU4 are the subjects of ongoing remedial investigations (RIs). The OU5 RI Report was finalized in July 2009 and the feasibility study (FS) is underway. Ultimately, the RI/FS for OU 5 will provide data to select and design a final remedy for the South Ditch.

II. Site Chronology

Table 1: Chronology of Site Events

Event	Date
Initial discovery of problem or contamination	March 1992
Pre-NPL responses – State Consent Order	November 1995
OU1 RI/FS complete	February 1996
Site Proposed to NPL	April 1, 1997
Site Final on NPL	May 10, 1999
OU1 Interim Action ROD Signature	October 3, 2003
OU1 Remedial Design completed	July 1, 2005
OU1 Construction start	July 1, 2005
OU1 Final Removal Report	May 3, 2006
OU1 Construction complete	June 20, 2006

III. Background

Physical Characteristics

The DePue/New Jersey Zinc/Mobil Chemical Site is located within the village of DePue in Selby Township, Bureau County, Illinois, and encompasses approximately 950 acres (Figure 1). The site boundaries include DePue Lake to the south, East Street to the west, Broadway Street to the east, and centers of Section 25 and 26 to the north (T.16N-R.10E).

OU1 is fully within the annual flood plain of DePue Lake and flooding is controlled by the water level of the Illinois River. OU1 provides surface water drainage for a minor portion of the site and previously received uncontrolled discharges of groundwater and surface water from the plant site. The northern 120 to 150 feet of the ditch is incised into fill consisting of placed soil and slag material. The remainder of the ditch traverses marshy lowlands adjacent to DePue Lake. OU1 empties directly into DePue Lake approximately 1,600 feet below the origin of the ditch.

Land and Resource Use

The DePue/New Jersey Zinc/Mobil Chemical site is surrounded by and currently fully contained within the village limits of the village of DePue. DePue is a village of 1,677 people as reported in the 2000 U.S. Census with a 30% to 40% Hispanic population. The site as defined by previously PRP-utilized land consists currently of 985 acres of PRP-owned land, with approximately 195 acres of that within the former manufacturing area (the Plant Site).

The Plant Site (OU3) is bounded on the east, west and south by residential areas and on the north by forested land. The Phosphogypsum Stack (OU2) lies north of the Plant Site and is bounded on the east and south by forested land and on the north and west by agricultural land. The South Ditch (OU1) is bounded on the north by the Iowa Interstate Railroad grade, on the east and west by flood plain wetland vegetation and on the south by DePue Lake and the State of Illinois DePue-Donnelly Wildlife Management area. OU1 sits entirely within the limits of the DePue Lake (OU5) RI area. DePue Lake is bounded on the north partially by the village of DePue's Lake Park and residential areas and the remainder by flood plain wetland reed and forest; this flood plain reed and forest land use surrounds the remainder of DePue Lake on the west, east and south. The full size and boundaries of the Off-Site Soils (OU4) remains undefined, but generally includes all residential areas of the village of DePue and will likely include some agricultural areas along with forested areas. OU4 will likely be bounded by DePue Lake on the south and mixed agricultural and forested lands on the east, west and north. The DePue-Donnelly Wildlife Management Area is known to harbor three nesting pairs of American Bald Eagles and over 600 Great Blue Heron nests. This wildlife area is an integral portion of the Illinois Fly Way Water Fowl Program.

The two DePue municipal water supply wells are located immediately north of DePue Lake behind the municipal water treatment plant immediately north east of the intersection of First and Liberty streets. The wells are both finished to a depth of greater than 1,600 ft below land surface and draw their water from the St. Peter Sandstone. The upper St. Peter in this area is weathered sandstone providing significant aquitard protection to the potable source.

The potable supply system is the subject of routine sampling by the village and Illinois EPA's Division of Public Water Supplies and consistently found to be in compliance with all drinking water standards. The village of DePue has in place a groundwater use prohibition ordinance mandating all residents to use the public supply system. Well surveys conducted by the Illinois Department of Public Health, Illinois EPA and the PRPs have not identified any local potentially-impacted private use of groundwater.

History of Contamination

Starting in the early 1900s, the site previously was used for primary zinc smelting, the manufacture of sulfuric acid, zinc dust, lithopone paint pigment, billet zinc, cadmium metal, and diammonium phosphate fertilizer.

The contamination within South Ditch resulted from the commingling of a discrete surface water flow and several groundwater flows. The groundwater flows had a reduced pH and a high dissolved metals (various metal sulfates XXSO_4) concentration, while the surface waters contained limited metal content, but exhibited a highly buffered slightly elevated pH (CaCO_3). The mixing of these two water sources resulted in the deposition of mixed metal (primarily zinc and copper) carbonate in the South Ditch sediments.

Initial Response

Beginning with the promulgation of the Clean Water Act and the Clean Air Act, violations have been noted in numerous U.S. EPA and Illinois EPA inspections and the subject of myriad complaints and orders to the former owners and operators of the various manufacturing businesses at the site.

The DePue Site was the subject of site investigation and Hazard Ranking System (HRS) scoring in the late 1980s and did not initially qualify for the NPL. Following changes to the HRS scoring model in the early 1990s, the site was revisited by Illinois EPA's HRS program in 1992. The results of that sampling and assessment indicated that the site would qualify for the NPL. Negotiations were opened in early 1993 with the Potentially Responsible Parties (PRPs) and resulted in an Interim Consent Order between the State of Illinois, Horsehead Industries, Inc., Mobil Oil Corp., and Viacom International, Inc. The Interim Consent Order was entered in state Circuit Court in November 1995. At the time the Interim Consent Order was negotiated the site had not been divided into OUs but rather required RI/FS and Remedial Design (RD) on the extent of all contamination originating from the former manufacturing site. Ultimately, IEPA interpreted that to be OU3, OU4 and OU5. The Interim Consent Order also required completion

of a surface water study and implementation of a surface water management plan, construction and operation of the interim water treatment plant, completion of a dust monitoring plan and site-wide dust control.

Remedial investigations at OU1 were initiated in November 1995 and an interim remedy was selected in a ROD dated October 3, 2003. Illinois EPA signed the ROD, with U.S. EPA concurrence. The interim remedy at OU1 is the subject of this five-year review.

Basis for Taking Action

The RI for OU1 concluded that 8,000 cubic yards of metals-contaminated sediments contained elevated concentrations of arsenic, zinc, copper, cadmium, and lead. The ecological screening risk assessment portion of the RI indicated the sediments were 98% and 100% acutely toxic to two different surrogate test species. The human health risk assessment indicated unacceptable risk. Arsenic, cadmium, copper, and zinc exceeded a hazard index of 1 for the construction worker scenario, and copper exceeded a hazard index of 1 for the adolescent trespasser scenario.

The elevated ecological and human health risks were significant concerns, but also driving remedy selection was the fact that the metals-laden sediment was in an extremely dynamic physical setting with the potential to migrate into DePue Lake, and from there into the Illinois River, during periods of high storm water flow in the South Ditch and/or during flooding in DePue Lake and the Illinois River.

IV. Remedial Actions

Remedy Selection

The October 2003 interim action ROD addressed the principal threat at the South Ditch by requiring the removal of the metals-contaminated sediments. The interim action ROD did not contain chemical-specific cleanup targets, but rather required the removal of the visibly-contaminated sediments identified during the RI. The following remedial action objectives (RAOs) were established for the South Ditch interim action ROD:

- Mitigate the potential for flood water and water discharge to the South Ditch to mobilize the metals-contaminated sediments;
- Mitigate the potential acute exposure risk to sensitive ecological and human receptors via contact with the metals-contaminated sediments;
- Mitigate the potential of exposure risk for the on-site trespasser; and
- Be compatible with future site-wide remedies.

To achieve these RAOs, alternative 4B was selected as the interim remedy at OU1. Key components of the selected remedy included:

- Treatability studies to determine the following: appropriate admixtures and dosage rates to achieve adequate contaminant removal from discharge water streams; retention (settling) time required in decant basins; assessment of physical treatment enhancements likely to assist in meeting discharge criteria (i.e. high volume sand filtration); pilot evaluations of mechanical techniques for high solids sediment removal; physical stabilization and chemical fixation agents, mixing rates and curing times required prior to placement of sediment in the Interim Containment Cell; and silt fence material selection, placement and maintenance frequency;
- Construction of settling basins (decant ponds);
- Construction of an interim containment cell where the bottom and sidewalls of the cell would generally consist of a graded layer of low-permeability soil, a synthetic impermeable liner and an aggregate drainage layer under the stabilized metals-contaminated sediments;
- Hydraulic and/or mechanical dredging of metals-contaminated sediments;
- Dewatering, stabilization and finally placement of the stabilized metals-contaminated sediments into the interim containment cell;
- Construction of a solid waste cap over the interim containment cell; and
- Monitoring and maintenance for the interim containment cell.

Prior to implementation of the South Ditch remedy, the contaminated groundwater and surface water known to be the source of the metals-contaminated sediments was brought under control and treated in an on-site Interim Water Treatment Plant (IWTP). The IWTP is fed by a lift station at the previous head of the South Ditch. The IWTP has consistently operated in general compliance with ARARs and the Interim Consent Order between the PRPs and the State of Illinois.

Remedy Implementation

The OU1 interim action ROD required only removal of sediment to a visual standard, acknowledging that the soils adjacent to OU1 were likely contaminated and would be addressed as part of OU5. The RI/FS for OU5 will provide data to select and design a final remedy for the South Ditch (OU1). The interim response actions for the metals-contaminated sediments at OU1 addressed the principal threat by removing the sediment and placing them in an environmentally secure unit on the plant site, also referred to as a Corrective Action Management Unit (CAMU).

The metals-contaminated sediments were removed from the South Ditch using long-reach backhoe technology working from approximately 1,600 ft of interlocking swamp mats. Normal storm and spring water flow into the South Ditch was diverted around the work area. The combined water flow contained elevated levels of ammonia and in order to be consistent with National Pollutant Discharge Elimination System requirements and ARARs, the water was directed through a particulate bag filter and discharged in the OU5 floodplain. The vegetation in the floodplain provided adequate ammonia removal through phytoremediation.

The removal of the sediment was accomplished during a period of low water levels in the fall of 2005. Remedy initiation needed to occur during an extended dry period because the entire work area was well below the annual flood elevation (450 ft above mean sea level (AMSL)). Significant portions of the work area were below the flat pool elevation of DePue Lake and the Illinois River (440.2 ft AMSL). The collected soft metals-contaminated sediments were then fixed and stabilized using combustion fly ash with a 60+% active calcium oxide concentration. The high calcium oxide content was required to fix the metals while the inert mineral portion of the combustion ash provided physical stabilization to support the weight of a future cap.

The CAMU was constructed to contain the metals-contaminated sediments from the South Ditch and is consistent with Resource Conservation and Recovery Act requirements and ARARs. The CAMU has a high-density polyethylene multi-layered lined bottom and remains uncapped. A leachate collection system pulls accumulated storm water from the CAMU and directs the leachate to the on-site IWTP. In addition, adequate vegetative cover exists to stabilize the material and preclude movement via wind erosion. The CAMU is located adjacent to and up gradient of a 15-acre primary zinc smelter slag pile within the fenced area of OU3 and resides over an area of contaminated soil and groundwater.

Institutional Controls

Institutional controls (ICs) are non-engineered instruments, such as administrative and/or legal controls, that help minimize the potential for exposure to contamination and protect the integrity of the remedy. Compliance with ICs is required to assure long-term protectiveness for any areas which do not allow for unlimited use or unrestricted exposure.

The interim action ROD for OU1 did not include ICs as a remedy component. Currently, the entire area of the South Ditch, where residual contamination exists, is owned by the PRPs and subject to the property transfer requirements outlined in the Interim Consent Order. The South Ditch interim action ROD addressed the principal threat by removing and containing the metals-contaminated sediments. The ongoing investigations and ultimate cleanup plan for DePue Lake (OU5) will incorporate a final remedy for the South Ditch. A determination of the need for ICs for the Site will be undertaken to ensure long-term protectiveness of human health and the environment. Illinois EPA, in consultation with U.S. EPA, will review the need for ICs during the feasibility study and remedy selection process for OU5. If needed, Illinois EPA and U.S. EPA will require IC evaluation activities and an IC work plan for implementation and long-term stewardship.

Illinois EPA and U.S. EPA will explore the necessity and feasibility of implementing environmental covenants at the site pursuant to the Illinois Uniform Environmental Covenants Act (UECA), at 765 ILCS Ch. 122, which became effective on January 1, 2009. The UECA provides numerous statutory benefits including a standard process for creating, modifying, transferring, recording, and enforcing environmental covenants.

In the meantime, there is no evidence of any actual exposures to site-related contaminants which adversely impact human health and the environment. While a small quantity of metals-

contaminated sediments has been redeposited in the South Ditch, it is in an area secured by fencing and/or otherwise (due to the physical nature of the location) barred from access by trespassers. In addition, the metals-contaminated sediments removed during the cleanup of OU1 are secure in a CAMU and stabilized in such a manner that the sediment are no longer mobile or accessible by untrained workers or citizenry.

System Operations/Operation and Maintenance

Operation and Maintenance (O&M) of OU1 consists of periodic (at least twice per year and following significant flood events) inspection of the area and monthly observation of the CAMU. Currently, the South Ditch is secured by a 6-ft-high chain link fence and gate. Since on-site containment is a key component of the remedy, long-term management and monitoring of the site is required.

During two record flood events in September 2008 and March 2009, the lift station feeding the IWTP was overtopped by flood waters. Both flood events exceeded the ARAR-compliant design elevation of the lift station resulting in redeposition of an undetermined, but minor, quantity of metals-contaminated sediments in the uppermost reach of the South Ditch. The area of deposition is located in an incised portion of the ditch and access is restricted by a secure 6-ft-high chain link fence and gate.

Attempts to specifically characterize and quantify the new metals-contaminated sediments are ongoing and have been deterred by winter weather and then by continuing high water in DePue Lake. The redeposited sediment in the South Ditch are held in place by a natural beaver dam with minimal potential to migrate further downstream. In addition, the ditch sides along this segment are at the angle of repose and soil/slag material are not safe to traverse during periods of snow cover or high lake levels.

During the period of this five-year review the IWTP and lift station remain in general compliance with ARARs and the State of Illinois Interim Consent Order. The South Ditch has naturalized into the DePue Lake environment and the CAMU remains an effective control for the stabilized and fixed sediment.

The ROD estimated \$11,000 for O&M costs. Currently, O&M costs are believed to be somewhat less as all inspection/monitoring activities are incorporated into ongoing OU3 operations. Actual O&M cost information is not available because the DePue Site is an enforcement lead site and the PRPs have not provided that information.

V. Progress Since the Last Five-Year Review

This is the first five-year review for the DePue/New Jersey Zinc/Mobil Chemical Superfund Site.

VI. Five-Year Review Process

Administrative Components

This review was conducted from September 2009 to June 2010 and prepared by Rich Lange, Illinois EPA RPM for the site. The five-year review consisted of a review of accumulated data, including data submitted by the PRPs in support of maintaining and monitoring the remedy at the South Ditch. The U.S. EPA RPM, Colleen Moynihan, provided support to the Illinois EPA RPM during the five-year review.

Community Notification and Involvement

Illinois EPA maintains a site office located in the business district of the village of DePue. The current Illinois EPA RPM has managed this site since 1992, and is well known in the community. As a result, local residents have relatively immediate access to the Illinois EPA and can discuss the site with the project manager. Additionally, Illinois EPA maintains a site information repository at the Selby Township Library, 101 Depot Street, adjacent to the site and within 100 yards of the Illinois EPA site office. While no specific meeting was held to notify the public that the five-year review process had been initiated, the continuous presence of the RPM in the community, as well as a local repository, has kept the public informed and allowed their questions and concerns to be addressed.

A public notice prepared by Illinois EPA was published in the Bureau County Republic Newspaper (Appendix B). The public notice summarized the selected remedial actions at OU1. A copy of this five-year review report will be available in the local repository.

Document and Data Review

The interim action ROD for the South Ditch stipulated removal of metals-contaminated sediments to a visual standard only, and no data have been collected subsequent to the remedial action sediment removal final report completed on May 31, 2006. Therefore, no current data exist to review specific to the South Ditch.

The Illinois EPA RPM visits the area of the South Ditch at least twice annually and as frequently as weekly during periods of flooding. While no specific notes are taken during these visits, no issues other than the minor redeposition of metals-contaminated sediments have been found.

The CAMU located at OU3 is visited monthly and the on-site IWTP records are reviewed. These records report the quantity of leachate removed by the CAMU collection system. Although the CAMU remains uncapped, pending future use, adequate vegetative cover exists to stabilize the material so relocation via wind erosion does not occur. The monthly visit by the RPM ensures that the leachate collection system and vegetative cover are maintained. Appendix A provides the list of documents that were reviewed as part of the five-year review.

Site Inspection

A site inspection was conducted on March 1, 2010, by Rich Lange, RPM for Illinois EPA. The purpose of the site inspection was to evaluate current site conditions and assess the protectiveness of the remedy. Components of the remedy that were inspected included the presence of fencing to restrict access and the integrity of the CAMU at OU3.

The South Ditch has experienced damage from extensive flooding resulting from record-setting levels in the Illinois River over the past few years. Current design and protection is consistent with State and Federal design requirements. Illinois EPA will solicit voluntary improvement in flood control from the PRPs. A copy of the site inspection checklist (Appendix C) and site photographs (Appendix D) are included in this report.

Interviews

Specific interviews associated with the preparation of the five-year review report were not conducted. The proximity of the Illinois EPA office to the site allows for questions and concerns from local residents to be addressed in a timely fashion. In addition, Illinois EPA hosted a public meeting in August 2009 to discuss the results of the DePue Lake remedial investigation and update the community about the progress on other operable units.

VII. Technical Assessment

Question A: Is the remedy functioning as intended by the decision documents?

Yes. According to the ROD, the remedy selected for OU1 was an interim action for the site and future cleanup plans for adjacent operable units will address any residual sediment contamination, groundwater contamination, and discharges of contaminated groundwater to surface water. The interim action addressed the principal threat at the South Ditch by removing metals-contaminated sediments along with containment of that sediment in a CAMU on the Plant Site. A minor quantity of metals-contaminated sediments has redeposited in the South Ditch as a result of damage due to historic flooding in late 2008 and early 2009. Subsequent high water levels in DePue Lake and winter ice, along with the very restrictive physical setting, have deterred full assessment of the nature and quantity of this sediment. Current visual assessment indicates that less than 100 ft of the 1,600 ft of the South Ditch is subject to this concern. The installation of the fence and the physical setting of the South Ditch restrict access by trespassers, which was the main exposure pathway driving selection of the interim remedial action.

Future remedial actions at the South Ditch depend on the selection of the final remedy for DePue Lake (OU5). A determination of the need for ICs for the site will be undertaken to ensure long-term protectiveness of human health and the environment. Illinois EPA, in consultation with U.S. EPA, will review the need for ICs in the selection of the final remedy components. If needed, Illinois EPA and U.S. EPA will require IC evaluation activities and an IC work plan for implementation and long-term stewardship of ICs.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of remedy selection still valid?

Yes. All the assumptions and remedial actions objectives used at the time of the interim action ROD are still valid. The ROD did not specify a numeric cleanup levels for sediments, but required cleanup to a visual standard only. As documented in the South Ditch Interim Remedial Action Sediment Removal Final Report, the appropriate quantity of sediment was removed from the OU. Therefore, the principal threat was removed from the South Ditch. While small quantities of metals-contaminated sediments have been redeposited in the South Ditch, it is in an area secured by fencing and/or otherwise (due to the physical nature of the location) barred from access by trespassers. In addition, the metals-contaminated sediments removed during the cleanup are secure in a CAMU and stabilized in such a manner that the sediments are no longer mobile or accessible by untrained workers or citizenry.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

No. No other information has come to light that could call into question the protectiveness of the remedy.

Technical Assessment Summary

The remedy is functioning as intended by the interim action ROD, which addressed the principal threat at the South Ditch by requiring the removal of metals-contaminated sediments and containment of that sediment at a CAMU on the Plant Site. All assumptions and remedial action objectives used at the time of the interim action ROD are still valid. The cleanup levels selected did not contain chemical-specific cleanup targets, but rather required the removal of the visibly contaminated sediments. Currently, a minor quantity of metals-contaminated sediments has redeposited in the South Ditch, but the installation of the fence and the physical setting of the South Ditch restrict access. No other information has come to light that could call into question the protectiveness of the remedy. Finally, the ongoing investigations and ultimate cleanup plan for DePue Lake (OU5) will incorporate a final remedy and determine the need for institutional controls for the South Ditch.

VIII. Issues

Table 2: Issues

Issues	Affects Current Protectiveness (Y/N)	Affects Future Protectiveness (Y/N)
1. A small quantity of metals-contaminated sediments has been redeposited in the upper segment of the South Ditch (OU1).	N	Y
2. IC requirements are undetermined.	N	Y

IX. Recommendations and Follow-up Actions

Table 3: Recommendations and Follow-up Actions

Issue	Recommendations and Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness	
					Current	Future
1. A small quantity of metals-contaminated sediments has been redeposited in the upper segment of the South Ditch (OU1)	(a) Fully assess the redeposited sediment as part of the OU5 RI/FS.	PRPs	Illinois EPA	Dec. 2010	No	Yes
	(b) Select a final remedy for the South Ditch as part of the OU5 ROD.	Illinois EPA	U.S. EPA	ROD for OU5 anticipated by March 30 th , 2012		
	(c) Evaluate the use of enhanced flood protection of the lift station	PRPs	Illinois EPA	Prior to completion of OU5 remedial action		
2. IC requirements are undetermined.	Determine and clarify in the ROD for OU5 whether ICs are required as part of the final remedy for OU1 to ensure long-term protectiveness.	Illinois EPA	U.S. EPA	ROD for OU5 anticipated by March 30 th , 2012	No	Yes

X. Protectiveness Statement(s)

The interim remedy at OU1 is protective of human health and the environment in the short term because access to the South Ditch is restricted by a fence and the metals-contaminated sediments that were removed are stored in a CAMU at OU3. In order for the remedy at OU1 to be protective in the long term, the remedy selection process for OU5 must be completed and implemented. A site-wide protectiveness statement can not be made at this time because remedy selection and remedial actions have not been initiated at all operable units. Additionally, a determination of the need for ICs for the site will be undertaken to ensure long-term protectiveness of human health and the environment. Illinois EPA, in consultation with the U.S. EPA, will review the need for ICs during the selection of the final remedy components. If needed, Illinois EPA and U.S. EPA will require IC evaluation activities and an IC work plan for implementation and long-term stewardship.

XI. Next Review

The next five-year review report for the DePue/New Jersey Zinc/Mobil Chemical Superfund Site is required within five years from the signature date of this review.

FIGURE 1

SITE MAP

Bureau County, De Pue, Illinois



OU1 – The South Ditch Sediment – Completed 2005.
OU2 – The Phosphogypsum Stack – Currently undergoing separate closure.
OU3 – The Former Plant Site Area (FPSA) – Work plans are currently being prepared.
OU4 – Off-Site Soils – Work plans are currently being prepared.
OU5 – DePue Lake Sediments and Floodplain – Remedial Investigation completed July 2009.

APPENDIX A

List of Documents Reviewed

DePue/New Jersey Zinc/Mobil Chemical site, Interim Water Treatment Plant operators logs, Aug. 2005 through March 2009

Record of Decision, New Jersey Zinc / Mobil Chemical NPL Site, South Ditch Interim Sediments Action, DePue, Illinois, Oct. 2003

South Ditch Interim Remedial Action, Sediment Removal Final Report, New Jersey Zinc / Mobil Chemical NPL Site, DePue, Illinois; Apollo Environmental Strategies, Inc., May 2006

South Ditch Interim Remedial Action – Volume Discrepancy Reconciliation, NJ Zinc / Mobil Chemical Corporation Site, DePue, Bureau County Illinois; Aug. 2006

U. S. Army Corp of Engineers staff gauge records for the LaSalle IL-Rte 351 gauge, Sept, 2008 - Dec. 2008 / Jan 2009 - and March 2009
<http://www2.mvr.usace.army.mil/WaterControl/stationinfo2.cfm?sid=LSLI2&dt=S>

APPENDIX B

Five-Year Review Public Notice

Bureau County Republican

8A • Life & Arts • Saturday, May 15, 2010

Births Announce

To: Maggie
Carson

From: Rick Lange

Illinois EPA to Review Bureau County, New Jersey Zinc / Mobil Chemical Superfund Site DePue, Illinois

The Illinois EPA is conducting a five year review of the South Ditch Operable Unit at the New Jersey Zinc / Mobil Chemical Superfund Site in DePue, Illinois. The Superfund law requires regular reviews of sites (at least every five years) where the cleanup is complete but hazardous waste remains managed onsite. These reviews are done to ensure that the cleanup continues to protect human health and the environment.

The South Ditch Operable Unit received past discharges of contaminated water from the New Jersey Zinc / Mobil Chemical plant site until 1997 when the owners put a collection and treatment system into operation. Investigations by the Illinois EPA and the owners determined that The South Ditch was a point of deposition of metal contaminated pre-solvent sediment, which represented a threat to human health and the environment.

The USEPA and the Illinois EPA selected the following cleanup actions for the site, which include removal of the unusual sediment followed by chemical and physical fixation followed by containment in a newly constructed waste management unit on the former plant site.

This five-year review will:

- Evaluate the implementation and performance of the original cleanup
- Ensure that it continues to protect human health and the environment

This is the first five year review for South Ditch Operable Unit at the New Jersey Zinc / Mobil Chemical site. This five-year review report will detail the sites progress and effectiveness of the remedy implemented for the South Ditch.

For further information please contact Jay Tiram at 1021 North Grand St., PO Box 13275, Springfield, IL 62794 or Richard Lange at P.O. Box 1515, Springfield, IL 62765.

Maggie

Can you also

Copy This to

Jay For me?

Thanks
Jung

In The Field this
PM

APPENDIX C

Site Inspection Checklist

Site Inspection Checklist

I. SITE INFORMATION	
Site name: DePue New Jersey Zinc / Mobil Chem	Date of inspection: March 1, 2010
Location and Region: DePue, IL Region V	EPA ID: ILD 062340641
Agency, office, or company leading the five-year review: Illinois EPA	Weather/temperature: Clear Cool
Remedy Includes: (Check all that apply) <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div style="width: 45%;"> <ul style="list-style-type: none"> • Landfill cover/containment • Access controls G Institutional controls G Groundwater pump and treatment G Surface water collection and treatment • Other Status of habitat restoration in work area _____ </div> <div style="width: 45%;"> <ul style="list-style-type: none"> G Monitored natural attenuation G Groundwater containment G Vertical barrier walls </div> </div>	
Attachments: G Inspection team roster attached G Site map attached	
II. INTERVIEWS (Check all that apply)	
<div style="margin-bottom: 10px;"> 1. O&M site manager Steve Weberski Water Plant Operator March 1, 2010 <div style="display: flex; justify-content: space-between; margin-top: 5px;"> Name Title Date </div> Interviewed X at site G at office G by phone Phone no. _____ <div style="margin-top: 5px;"> Problems, suggestions; G Report attached _____ </div> </div>	
<div> 2. O&M staff Randy Sommer Asst plant operator March 1, 2010 <div style="display: flex; justify-content: space-between; margin-top: 5px;"> Name Title Date </div> Interviewed X at site G at office G by phone Phone no. _____ <div style="margin-top: 5px;"> Problems, suggestions; G Report attached _____ </div> </div>	

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency NA
Contact _____
Name _____ Title _____ Date _____ Phone no. _____
Problems; suggestions; G Report attached _____

Agency _____
Contact _____
Name _____ Title _____ Date _____ Phone no. _____
Problems; suggestions; G Report attached _____

Agency _____
Contact _____
Name _____ Title _____ Date _____ Phone no. _____
Problems; suggestions; G Report attached _____

Agency _____
Contact _____
Name _____ Title _____ Date _____ Phone no. _____
Problems; suggestions; G Report attached _____

4. **Other interviews** (optional) G Report attached.

NA

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)				
1.	O&M Documents X O&M manual X As-built drawings X Maintenance logs Remarks _____	X Readily available X Readily available X Readily available	X Up to date X Up to date X Up to date	G N/A G N/A G N/A
2.	Site-Specific Health and Safety Plan X Contingency plan/emergency response plan Remarks _____	X Readily available X Readily available	X Up to date X Up to date	G N/A G N/A
3.	O&M and OSHA Training Records Remarks _____	X Readily available	X Up to date	G N/A
4.	Permits and Service Agreements X Air discharge permit X Effluent discharge G Waste disposal, POTW G Other permits _____ Remarks _____	X Readily available X Readily available G Readily available G Readily available	G Up to date G Up to date G Up to date G Up to date	G N/A G N/A X N/A G N/A
5.	Gas Generation Records Remarks _____	G Readily available	G Up to date	X N/A
6.	Settlement Monument Records Remarks _____	G Readily available	G Up to date	X N/A
7.	Groundwater Monitoring Records Remarks _____	G Readily available	G Up to date	X N/A
8.	Leachate Extraction Records Remarks _____	X Readily available	X Up to date	G N/A
9.	Discharge Compliance Records G Air X Water (effluent) Remarks _____	G Readily available X Readily available	G Up to date X Up to date	X N/A G N/A
10.	Daily Access/Security Logs Remarks _____	G Readily available	G Up to date	X N/A

IV. O&M COSTS																																											
1.	O&M Organization <div style="display: flex; justify-content: space-between;"> <div> <input checked="" type="checkbox"/> State in-house <input type="checkbox"/> PRP in-house <input checked="" type="checkbox"/> Federal Facility in-house <input checked="" type="checkbox"/> Other _____ </div> <div> <input checked="" type="checkbox"/> Contractor for State <input checked="" type="checkbox"/> Contractor for PRP <input checked="" type="checkbox"/> Contractor for Federal Facility </div> </div>																																										
2.	O&M Cost Records <div style="display: flex; justify-content: space-between;"> <div> <input checked="" type="checkbox"/> Readily available <input checked="" type="checkbox"/> Funding mechanism/agreement in place Original O&M cost estimate </div> <div> <input checked="" type="checkbox"/> Up to date Enforcement Lead Not Available </div> <div> <input checked="" type="checkbox"/> Breakdown attached </div> </div> <p style="text-align: center; margin-top: 10px;">Total annual cost by year for review period if available</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">From _____</td> <td style="width: 10%;">To _____</td> <td style="width: 20%;"></td> <td style="width: 50%;"></td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: center;">Total cost</td> <td style="vertical-align: top;">G Breakdown attached</td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: center;">Total cost</td> <td style="vertical-align: top;">G Breakdown attached</td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: center;">Total cost</td> <td style="vertical-align: top;">G Breakdown attached</td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: center;">Total cost</td> <td style="vertical-align: top;">G Breakdown attached</td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: center;">Total cost</td> <td style="vertical-align: top;">G Breakdown attached</td> </tr> </table>			From _____	To _____			Date	Date	Total cost	G Breakdown attached	From _____	To _____			Date	Date	Total cost	G Breakdown attached	From _____	To _____			Date	Date	Total cost	G Breakdown attached	From _____	To _____			Date	Date	Total cost	G Breakdown attached	From _____	To _____			Date	Date	Total cost	G Breakdown attached
From _____	To _____																																										
Date	Date	Total cost	G Breakdown attached																																								
From _____	To _____																																										
Date	Date	Total cost	G Breakdown attached																																								
From _____	To _____																																										
Date	Date	Total cost	G Breakdown attached																																								
From _____	To _____																																										
Date	Date	Total cost	G Breakdown attached																																								
From _____	To _____																																										
Date	Date	Total cost	G Breakdown attached																																								
3.	Unanticipated or Unusually High O&M Costs During Review Period Describe costs and reasons: _____ NA _____ _____ _____ _____ _____																																										
V. ACCESS AND INSTITUTIONAL CONTROLS <input checked="" type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A																																											
A. Fencing																																											
1.	Fencing damaged <input checked="" type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Gates secured <input checked="" type="checkbox"/> N/A Remarks _____ _____																																										
B. Other Access Restrictions																																											
1.	Signs and other security measures <input checked="" type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> N/A Remarks Signage in place and appropriate _____ _____																																										

C. Institutional Controls (ICs)				
1.	Implementation and enforcement			
	Site conditions imply ICs not properly implemented		G Yes	G No X N/A
	Site conditions imply ICs not being fully enforced		G Yes	G No X N/A
	Type of monitoring (e.g., self-reporting, drive by) _____			
	Frequency _____			
	Responsible party/agency _____			
	Contact _____			
	Name	Title	Date	Phone no.
	Reporting is up-to-date		G Yes	G No X NA
	Reports are verified by the lead agency		G Yes	G No X N/A
	Specific requirements in deed or decision documents have been met		X Yes	G No X NA
	Violations have been reported		G Yes	G No X N/A
	Other problems or suggestions: G Report attached			

2.	Adequacy	G ICs are adequate	G ICs are inadequate	G N/A
	Remarks	_____		

D. General				
1.	Vandalism/trespassing	G Location shown on site map	G No vandalism evident	
	Remarks	_____		

2.	Land use changes on site	G N/A		
	Remarks	_____		

3.	Land use changes off site	G N/A		
	Remarks	_____		

VI. GENERAL SITE CONDITIONS				
A. Roads	G Applicable	X N/A		
1.	Roads damaged	G Location shown on site map	G Roads adequate	G N/A
	Remarks	_____		

B. Other Site Conditions

Remarks Site has experienced damage from extensive flooding resulting from record setting levels in Illinois River in Sept 2008, Dec 2008 and March 2009. Response has been adequate and appropriate. Further protection from future flooding might benefit site but current design and protection is consistent with State and Federal Design requirements. Illinois EPA will solicit voluntary improvement in flood control from PRPs.

VII. LANDFILL COVERS G Applicable X N/A**A. Landfill Surface**

1.	Settlement (Low spots) Areal extent _____ Remarks _____	G Location shown on site map Depth _____	G Settlement not evident
2.	Cracks Lengths _____ Widths _____ Depths _____ Remarks _____	G Location shown on site map	G Cracking not evident
3.	Erosion Areal extent _____ Remarks _____	G Location shown on site map Depth _____	G Erosion not evident
4.	Holes Areal extent _____ Remarks _____	G Location shown on site map Depth _____	G Holes not evident
5.	Vegetative Cover G Grass G Cover properly established G No signs of stress G Trees/Shrubs (indicate size and locations on a diagram) Remarks _____		
6.	Alternative Cover (armored rock, concrete, etc.) G N/A Remarks _____		
7.	Bulges Areal extent _____ Remarks _____	G Location shown on site map Height _____	G Bulges not evident

8.	Wet Areas/Water Damage G Wet areas G Ponding G Seeps G Soft subgrade Remarks _____	G Wet areas/water damage not evident G Location shown on site map G Location shown on site map G Location shown on site map G Location shown on site map	Areal extent _____ Areal extent _____ Areal extent _____ Areal extent _____
9.	Slope Instability Areal extent _____ Remarks _____	G Slides G Location shown on site map	G No evidence of slope instability
B. Benches G Applicable G N/A (Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)			
1.	Flows Bypass Bench Remarks _____	G Location shown on site map	G N/A or okay
2.	Bench Breached Remarks _____	G Location shown on site map	G N/A or okay
3.	Bench Overtopped Remarks _____	G Location shown on site map	G N/A or okay
C. Letdown Channels G Applicable G N/A (Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)			
1.	Settlement Areal extent _____ Remarks _____	G Location shown on site map Depth _____	G No evidence of settlement
2.	Material Degradation Material type _____ Remarks _____	G Location shown on site map Areal extent _____	G No evidence of degradation
3.	Erosion Areal extent _____ Remarks _____	G Location shown on site map Depth _____	G No evidence of erosion

4.	Undercutting Areal extent _____ Depth _____ Remarks _____	G Location shown on site map G No evidence of undercutting	
5.	Obstructions Type _____ G Location shown on site map Areal extent _____ Size _____ Remarks _____	G No obstructions	
6.	Excessive Vegetative Growth Type _____ G No evidence of excessive growth G Vegetation in channels does not obstruct flow G Location shown on site map Areal extent _____ Remarks _____		
D. Cover Penetrations G Applicable G N/A			
1.	Gas Vents G Active G Passive G Properly secured/locked G Functioning G Routinely sampled G Good condition G Evidence of leakage at penetration G Needs Maintenance G N/A Remarks _____		
2.	Gas Monitoring Probes G Properly secured/locked G Functioning G Routinely sampled G Good condition G Evidence of leakage at penetration G Needs Maintenance G N/A Remarks _____		
3.	Monitoring Wells (within surface area of landfill) G Properly secured/locked G Functioning G Routinely sampled G Good condition G Evidence of leakage at penetration G Needs Maintenance G N/A Remarks _____		
4.	Leachate Extraction Wells G Properly secured/locked G Functioning G Routinely sampled G Good condition G Evidence of leakage at penetration G Needs Maintenance G N/A Remarks _____		
5.	Settlement Monuments G Located G Routinely surveyed G N/A Remarks _____		

E. Gas Collection and Treatment		G Applicable	G N/A
1.	Gas Treatment Facilities G Flaring G Thermal destruction G Collection for reuse G Good condition G Needs Maintenance Remarks _____		
2.	Gas Collection Wells, Manifolds and Piping G Good condition G Needs Maintenance Remarks _____		
3.	Gas Monitoring Facilities (<i>e.g.</i> , gas monitoring of adjacent homes or buildings) G Good condition G Needs Maintenance G N/A Remarks _____		
F. Cover Drainage Layer		G Applicable	G N/A
1.	Outlet Pipes Inspected Remarks _____	G Functioning	G N/A
2.	Outlet Rock Inspected Remarks _____	G Functioning	G N/A
G. Detention/Sedimentation Ponds		G Applicable	G N/A
1.	Siltation Areal extent _____ Depth _____ G Siltation not evident Remarks _____		G N/A
2.	Erosion Areal extent _____ Depth _____ G Erosion not evident Remarks _____		
3.	Outlet Works Remarks _____	G Functioning	G N/A
4.	Dam Remarks _____	G Functioning	G N/A

H. Retaining Walls		G Applicable	G N/A
1.	Deformations Horizontal displacement _____ Rotational displacement _____ Remarks _____	G Location shown on site map	G Deformation not evident Vertical displacement _____
2.	Degradation Remarks _____	G Location shown on site map	G Degradation not evident
I. Perimeter Ditches/Off-Site Discharge		G Applicable	G N/A
1.	Siltation Areal extent _____ Remarks _____	G Location shown on site map	G Siltation not evident Depth _____
2.	Vegetative Growth G Vegetation does not impede flow Areal extent _____ Remarks _____	G Location shown on site map	G N/A Type _____
3.	Erosion Areal extent _____ Remarks _____	G Location shown on site map	G Erosion not evident Depth _____
4.	Discharge Structure Remarks _____	G Functioning	G N/A
VIII. VERTICAL BARRIER WALLS		G Applicable	G N/A
1.	Settlement Areal extent _____ Remarks _____	G Location shown on site map	G Settlement not evident Depth _____
2.	Performance Monitoring G Performance not monitored Frequency _____ Head differential _____ Remarks _____	Type of monitoring _____	G Evidence of breaching

C. Treatment System		G Applicable	G N/A
1.	Treatment Train (Check components that apply) G Metals removal G Oil/water separation G Bioremediation G Air stripping G Carbon adsorbers G Filters _____ G Additive (e.g., chelation agent, flocculent) _____ G Others _____ G Good condition G Needs Maintenance G Sampling ports properly marked and functional G Sampling/maintenance log displayed and up to date G Equipment properly identified G Quantity of groundwater treated annually _____ G Quantity of surface water treated annually _____ Remarks _____		
2.	Electrical Enclosures and Panels (properly rated and functional) G N/A G Good condition G Needs Maintenance Remarks _____		
3.	Tanks, Vaults, Storage Vessels G N/A G Good condition G Proper secondary containment G Needs Maintenance Remarks _____		
4.	Discharge Structure and Appurtenances G N/A G Good condition G Needs Maintenance Remarks _____		
5.	Treatment Building(s) G N/A G Good condition (esp. roof and doorways) G Needs repair G Chemicals and equipment properly stored Remarks _____		
6.	Monitoring Wells (pump and treatment remedy) G Properly secured/locked G Functioning G Routinely sampled G Good condition G All required wells located G Needs Maintenance G N/A Remarks _____		
D. Monitoring Data			
1.	Monitoring Data G Is routinely submitted on time G Is of acceptable quality		
2.	Monitoring data suggests: G Groundwater plume is effectively contained G Contaminant concentrations are declining		

D. Monitored Natural Attenuation**1. Monitoring Wells** (natural attenuation remedy)

G Properly secured/locked

G Functioning

G Routinely sampled

G Good condition

G All required wells located

G Needs Maintenance

G N/A

Remarks _____
_____**X. OTHER REMEDIES**

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS**A. Implementation of the Remedy**

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

___The remedy is functioning consistent with the ROD and RA Design Documents.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

___O & M is sufficient and adequate to the site and the OU___

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.

D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

See VI.B above

APPENDIX D

Photos Documenting Site Conditions



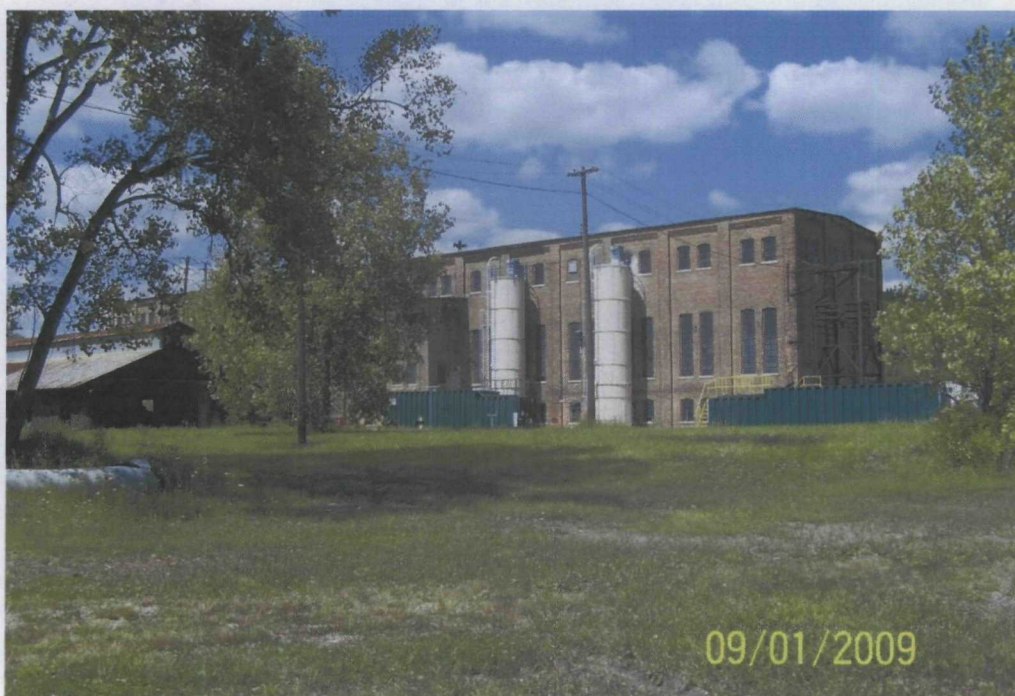
South Ditch Fence



South Ditch



Lift Station



Interim Water Treatment Plant toward NE